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# **Former Stimson Lumber Company Libby Asbestos Site, Operable Unit 5 Libby, Montana**

**Draft Summary Report  
May 2007**



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for the Former Stimson Lumber Company,  
Libby Asbestos Site, Operable Unit 5  
Libby, Montana**

**May 24, 2007**

Contract No. DTRT57-05-D-30109

**Task Order No. 00006**

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# Acronyms

ASTM	American Society for Testing and Materials
bgs	below ground surface
BMX	bicycle motocross
CDM	CDM Federal Programs Corporation
cm <sup>2</sup>	centimeters squared
CSS	Contaminant Screening Study
DQO	data quality objective
EMSL	EMSL Analytical Laboratories, Inc.
EPA	U.S. Environmental Protection Agency
E&W	engineering and warehouse
LA	Libby amphibole asbestos
LCPA	Lincoln County Port Authority
NIOSH	National Institute for Occupational Safety and Health
OU	operable unit
PDI	pre-design inspection
PDIWP	Pre-Design Inspection Activities Work Plan
PES	Pacific Environmental Services
PLM	polarized light microscopy
QA/QC	quality assurance/quality control
QC	quality control
RI	remedial investigation
SAP	sampling and analysis plan
S/cm <sup>2</sup>	structures per centimeter squared
Site	former Stimson Lumber Company property
SQAPP	Supplemental RI Quality Assurance Project Plan
SRC	Syracuse Research Corporation
VCBM	vermiculite-containing building materials
VE	visual area estimation
%	percent
yd <sup>3</sup>	cubic yards
"	inch

# Section 1

## Introduction

The purpose of this report is to summarize the investigation activities conducted by CDM Federal Programs Corporation (CDM) and its subcontractor Pacific Environmental Services (PES) and the removal activities conducted by Environmental Quality Management Incorporated at the former Stimson Lumber Company property (Site).

This summary report presents verbal interview information, visual inspection results, and site-specific soil, microvacuum dust, and bulk sampling data from these various events to be used in remedial investigation (RI) decision making for the Site.

### 1.1 Site Location and Background

The Site is situated in the eastern section of Libby, Montana on U.S. Highway 2 South (Figure 1-1). Stimson Lumber Company operated at the location until 2004. In 2004 the property was bought by the Lincoln County Port Authority (LCPA) and subsequently transferred ownership to the Kootenai Business Park Industrial District which is currently in the process of redeveloping the site.

The property is approximately 200 acres in size and is occupied by various buildings, processing plants, storage sheds including the central maintenance building, plywood plant, finger joint building, truck barn, office, and others. For investigation purposes the property was divided into eight subareas (Figure 1-2):

1. Former Popping Plant
2. Railroad Spur
3. Lumber Yard
4. Log Storage Yard
5. Southwest Area
6. Former Champion International Tree Nursery
7. Sprinkler Field
8. Superfund Site (Champion International)

The Champion International Superfund Site was appointed Superfund status due to groundwater contamination resulting from wood preservative processing and is not associated with the Libby Asbestos Superfund Site. Remediation efforts for the groundwater contamination are currently ongoing. These divisions were made based on assumed contaminant and environmental setting. The Sprinkler Field and Superfund Site subareas, part of another Superfund site, and were not investigated by CDM, and will not be discussed further in this report.

Historical information regarding the Stimson property suggests that vermiculite products were used at, or transported to, the property at various times and at various locations. Additionally, vermiculite insulation was installed in structures which were



used during daily plant operations. It is believed that these products contain varying levels of Libby amphibole asbestos (LA).

Multiple sampling events have occurred at the Site since 2002. Each of the following sampling events is summarized in Section 2. Because removal criteria have not been established for LA fiber concentrations in air (U.S. Environmental Protection Agency [EPA] 2003) these data are not included in this summary report. Similarly, quality control (QC) samples that were not used to qualify analytical results were also excluded from this summary.

- Microvacuum Dust sampling was conducted by PES in May 2002 at a shed in the former nursery area.
- Personal air, stationary air, and dust sampling was conducted in September 2002 in areas where vermiculite was known to be or suspected of being present.
- Contaminant Screening Study (CSS) site wide soil sampling was conducted in October 2002.
- CSS soil sampling was conducted in May 2004 at the current location of the bicycle motocross (BMX) track.
- Soil, dust, and bulk sampling was conducted in May 2004 at the central maintenance building to determine the extent of contamination requiring removal as part of the pre-design inspection (PDI).
- CSS soil sampling was conducted in July 2004 at the current location of the demolition derby track.
- Soil and air sampling was conducted in June 2005 as part of the Supplemental RI Quality Assurance Project Plan (SQAPP) (Syracuse Research Corporation [SRC] 2005)

To date, EPA has directed one removal action at the Site to remove contamination from the central maintenance building in 2005. However, IRS Environmental was privately contracted by Stimson Lumber Company to conduct the following asbestos removal activities. Because CDM was not involved in these removal actions, additional details regarding the work performed are not presented in this summary report.

- December 2002, removed 600 linear feet of pipe insulation in the dry kiln tunnel
- June 2003, removed 2 cubic yards (yd<sup>3</sup>) of vermiculite insulation from the walls of the truck shop
- August 2003, removed 270 yd<sup>3</sup> of vermiculite insulation from the floors, walls, and ceilings of the plywood dryers

- August 2003, removed 60 linear feet of pipe insulation from the northwest corner of the plywood plant
- August 2003, removed 1200 square feet of cement asbestos siding and roofing from the old screening building
- February 2005, removed 2 yd<sup>3</sup> of vermiculite insulation from the walls of the finger joint lunch room

## 1.2 Conceptual Site Model

The Libby Asbestos Superfund Site has been subdivided into Operable Units (OUs) to facilitate a phased approach to the cleanup. The former Stimson Lumber Company property is designated as OU5, while the majority of the residential, commercial/industrial properties within Libby are designated as OU4. The boundary of OU5 is defined geographically by the parcel of land that included the former Stimson Lumber Company. The eastern boundary of OU5 follows the western high bank of Libby Creek, and the creek will be included in OU4. Historically, the potential human receptors were mill workers in the buildings containing vermiculite insulation or those employees disturbing source materials in the soil. The illustrated conceptual site model is depicted in Figure 1-3. Currently, the sources of indoor vermiculite at the central maintenance building have been removed to the extent practical or sealed in place. The indoor sources of vermiculite that were removed by privately contracted abatement companies have not been sampled by CDM to verify contamination has been removed in accordance with EPA guidelines set forth in the Draft Final Technical Memorandum for the Libby Asbestos Site Residential/Commercial Cleanup Action Level and Clearance Criteria (EPA 2003). Soils containing visible vermiculite or detectable levels of LA remain a primary source of contamination, although confined to certain areas of the Site. Potential human receptors are commercial workers, tradespeople, and recreational users. Ecological receptors and environmental impacts will be characterized as part of OU4.

## 1.3 Objective

The objectives of the OU5 summary report are to:

- 1) Detail inspection results for interior sources of vermiculite
- 2) Present analytical results for all investigations
- 3) Summarize the removal action completed to date

## 1.4 Property Use

### 1.4.1 Historic Use

The timber industry was a major foundation of Libby's economy for much of the city's history. The first sawmill was built in the winter of 1891-1892 near the present day downtown Libby. In 1906, the Dawson Lumber Company built a modern saw mill bringing workers and their families to the city in greater numbers. As early as 1914, parcels were bought and sold from private owners to companies such as the Dawson Lumber Company, Libby Lumber Company, and St. Regis Paper Company.

In 1993, the Stimson Lumber Company purchased all of the parcels owned by the various private owners to form what is now recognized as the Site boundary. The Site was bounded to the north by the Kootenai River, to the west by Highway 2, to the east by the Kootenai National Forest and to the south by Gruber Road. The parcel of land containing Millwork West, a local lumber distributor, was sold by Stimson to private industries in 1998 and is considered part of OU4. In 2003, the Stimson Lumber Company sold all of the land except the parcel furthest south to the LCPA. In 2005, LCPA sold the land to the Kootenai Business Park Industrial District.

### **1.4.2 Current Use**

At the time of this report, there were several companies leasing building and land space from the Kootenai Business Park Industrial District. The buildings onsite that are currently occupied are the central maintenance building, finger joint plant, and the main office building. The BMX track and demolition track have been created for recreational use. There are frequent users of these areas with one larger competition held annually. The Stimson Lumber Company still owns the boiler equipment adjacent to the Finger Joint Plant but is in the process of looking for potential buyers.

### **1.4.3 Future Use**

Redevelopment plans for the property include restoration of the rail lines throughout the Site and restoration of the plywood plant for commercial use. Interested parties include a brick manufacturer. Plans are also being discussed for a walking path and fishing pond in the northeast corner of the Site near Libby Creek.

# Section 2

## Interview and Property Inspection

### 2.1 Interview

A site visit and meeting was conducted on September 28, 2001 by Mr. David Schroeder (CDM site manager), Mr. Greg Parana (PES field manager), and Dr. Chris Weis (EPA regional toxicologist). Stimson Lumber Company personnel present during this meeting included Mr. Fred Sturgess (Libby complex manager), Ms. Veronica Bovee (health and safety coordinator), Mr. John Chopot (environmental manager), and Mr. Barry Brown (local union #2581 president). The site visit included interviews with current employees and a walk-through of three subareas (Former Popping Plant, Railroad Spur, and Former Champion International Tree Nursery), the central maintenance building, and the plywood plant. The following information was gathered at this meeting.

The unpaved parking area used by Stimson Lumber Company employees (part of the Former Popping Plant subarea) was once used as an aboveground storage area for uncontainerized vermiculite ore. Vermiculite ore was stockpiled directly on the native soil surface and may have contaminated the area with measurable amounts of LA. The area was converted to a parking lot in 1990.

The Railroad Spur subarea, located near the Former Popping Plant location, was used for shipping raw and processed vermiculite material to and from the Site. It is suspected that this section of the railroad is contaminated with LA from loading/unloading operations and transportation.

A landscaping nursery (i.e., Former Champion International Tree Nursery subarea) was previously located along the southern boundary of the Site. It is believed that unexfoliated, or raw vermiculite product, was introduced to this area for use as a growth media and fill material. Currently the subarea remains a vacant lot with sparse vegetation. At the time of the interviews the area was used to stockpile log yard debris collected from 1991 through 1997.

The central maintenance building (located in the Southwest Area subarea) was insulated with vermiculite insulation at the time of the interview. This structure was equipped with a large gantry crane that traverses the length of the building. Movement of this crane caused vibration within the structure and released small amounts of vermiculite insulation from around seams and joints of the clapboard walls.

The plywood plant (part of the Stimson Lumber Company subarea), at the time of the interviews, was used for processing plywood. According to historical records, vermiculite insulation was used as an insulator for the plywood dryers. According to Stimson Lumber Company employees, the Big Dryer #1 was modified in 1986-87 and it is believed that vermiculite was added to the concrete, as well as sandwiched

between the top of the dryer and the concrete layer. The Little Dryer #2 was modified in 1996 and does not contain any vermiculite.

## 2.2 Property Inspection

As part of the air and dust sampling conducted in September 2002, buildings were inspected to determine if vermiculite insulation or vermiculite-containing building materials were present in structures. The presence of vermiculite insulation was confirmed in the plywood plant and central maintenance building and was not observed in any of the remaining structures on the Site. For thorough descriptions regarding the construction of and contamination observed within the central maintenance building, the reader is referred to the Addendum to the Response Action Work Plan for the Former Stimson Central Maintenance Building Commercial Removal Plan (CDM 2004a).

In addition, during all soil sampling activities observations were noted in logbooks and on field sample data sheets regarding any vermiculite observed. The specifics of vermiculite observed during soil sampling are discussed in Section 2.3.

## 2.3 Sampling

### 2.3.1 Soil Sampling

Soil sampling at the Site was designed for the quantification of relative LA abundance in soils throughout the Site following all rationale, data quality objectives, quality assurance procedures, and standard operating procedures from the *Final Sampling and Analysis Plan (SAP) for the RI CSS, Libby Asbestos Site, OU4* (CDM 2002a). For purposes of this investigation a site-specific SAP addendum was developed to the CSS SAP: *Final SAP Addendum for the Stimson Lumber Company Area, Libby Asbestos Site, OU4* (CDM 2002b). All soil investigation work was conducted in accordance with this SAP addendum. Subsequent soil sampling to delineate soil contamination requiring removal associated with the central maintenance building was conducted in accordance with the Final Draft Pre-Design Inspection Activities Work Plan (PDIWP), Libby Asbestos Project (CDM 2003).

This section discusses the field activities and sample results associated with the five investigative soil sampling events conducted at the Site:

- October 2002, CSS site wide soil sampling
- May 2004, CSS soil sampling for proposed location for BMX track
- May 2004, PDI soil sampling to identify soils requiring removal activities
- July 2004, CSS soil sampling for proposed location for demolition derby track
- June 2005, SQAPP soil sampling to correlate soil contamination with airborne fibers

### **2.3.1.1 Sample Locations and Collection**

To adequately characterize LA abundance in soils throughout the Site, the area was divided into eight subareas (Figure 1-2): Former Popping Plant, Railroad Spur, Lumber Yard, Log Storage Yard, Southwest Area, Former Champion International Tree Nursery, Sprinkler Field, and Champion International Superfund site. These divisions were made based on assumed contaminant concentrations, land use, and environmental setting. During this investigation, no sampling was conducted within the Sprinkler Field or the Champion International Superfund Site subareas as a result of ongoing remediation, and therefore, these subareas will not be discussed further.

#### **2.3.1.1.1 October 2002 Site Wide Soil Sampling Event**

A site wide soil sampling was conducted between October 14 and October 18, 2002 at the former Stimson Lumber Company in accordance with the Final SAP Addendum for the Stimson Lumber Company Area (CDM 2002b). All sampling procedures detailed in the SAP were followed without exception unless detailed in Section 2.4.

A total of 129 field samples and 9 field duplicates were collected from six subareas described in the Final SAP Addendum for the Stimson Lumber Company Area (CDM 2002b). Of the 129 field samples collected, 103 were surface samples collected from 0-6 inches (") below ground surface (bgs) and 26 were subsurface samples collected from 48-60" bgs. Vermiculite was not observed in any of the samples collected during this investigation. Table 2-1 summarizes the analytical results for each sample as well as identifying the sample type (composite versus grab), number of subsamples, sample depths, and sample locations. Summaries of the number of surface and subsurface samples collected from each subarea are presented in Table 2-2.

Figure 2-1 illustrates the locations and analytical results of the soil samples collected during this event.

#### **2.3.1.1.2 May 2004 BMX Track Soil Sampling Event**

In response to redevelopment plans by the Lincoln County Port Authority, who purchased the Stimson Lumber Company property in 2004, EPA requested additional soil sampling for LA to be conducted. Sampling was conducted on May 15, 2004 at an area where a BMX track was being proposed. The proposed (now current) location of the track is near the southeastern boundary of the Former Stimson Lumber Company (Figure 2-2). A site visit to the area prior to sampling revealed that construction of the track had begun before the area was sampled. The area had been graded by heavy equipment for the track outline.

The sampling plan for this area was described in a letter from CDM to EPA dated May 10, 2004 (CDM 2004b) and is included in Appendix A. All samples for this effort were collected and analyzed in accordance with the Final SAP addendum for the Stimson Lumber Company Area (CDM 2002b). All sampling procedures detailed in the SAP and letter, were followed without exception unless detailed in Section 2.4.

On May 15, 2004, a total of 21 field samples and one field duplicate were collected from 16 grids covering the proposed BMX track area (Figure 2-2). Of the 21 field

samples collected, eight were surface samples collected from 0-1" bgs, 8 were surface samples collected from 2-6" bgs, three were collected from randomly selected stockpiles formed during the regrading activities at 2-6" below the surface, and two were subsurface samples collected from 6-12" bgs. Vermiculite was observed in four of the samples collected during this investigation. Table 2-3 summarizes the analytical results for each sample as well as identifying the sample type, number of subsamples, sample depths, sample locations, and locations where visible vermiculite was observed. Table 2-4 summarizes the number of samples proposed for collection in the BMX sampling letter (CDM 2004b) versus the samples collected.

#### **2.3.1.1.3 May 2004 Pre-Design Soil Sampling Event**

To determine the extent of contamination in the soils directly surrounding the central maintenance building, a PDI was conducted in May 2004. A total of 4 field samples and one field duplicate were collected from the perimeter soils of the building. All samples collected were surface samples collected from 0-1" bgs. Vermiculite was observed within the soil of the two samples (and in the field duplicate sample) collected along the north and east sides of the central maintenance building. Table 2-5 summarizes the analytical results for each sample as well as identifying the sample type (composite versus grab), number of subsamples, sample depths, and sample locations. All samples for this effort were collected in accordance with Draft Final PDWIP (CDM 2003). All sampling procedures detailed in the PDIWP were followed without exception.

#### **2.3.1.1.4 July 2004 Demolition Derby Track Soil Sampling Event**

In response to redevelopment plans by LCPA, additional sampling for LA in soils was conducted in July 2004 in an area where a demolition derby track was proposed. The proposed location is located near the southeastern boundary of the Site just north of the area proposed for the BMX track (Figure 2-3).

The proposed sampling plan for this area was described in a letter from CDM to EPA dated July 1, 2004 (CDM 2004c) and is included in Appendix B. All samples for this effort were collected and analyzed in accordance with Final SAP Addendum for the Stimson Lumber Company Area (CDM 2002b). All sampling procedures detailed in the SAP and letter, were followed without exception.

On July 1, 2004, 19 field samples were collected from 9 200-ft by 200-ft grids covering the area of the proposed demolition derby track (Figure 2-3). Of the 19 field samples collected, nine were 5 point composite surface samples collected from 0-1" bgs, nine were 5 point composite surface samples collected from 2-6" bgs, and one was a 5 point composite subsurface sample collected from 6-12" bgs with each subsample coming from one of 5 randomly selected grids. Vermiculite was not observed in any of the samples during the sampling activities. Table 2-6 summarizes the analytical results for each sample as well as identifying the sample type, number of subsamples, sample depths, and sample locations. Figure 2-3 illustrates the location of all samples collected during this event.

#### **2.3.1.1.5 June 2005 SQAPP Sampling Event**

In summer 2005, activity based sampling (i.e., mowing, raking, child's play scenarios) were conducted at several properties where known concentrations of LA were present.

On June 21, 2005 sampling was conducted in an area of the Site that was previously sampled non-detect for LA (CS-09585). One soil sample was collected from the area where mowing took place, SQ-00061 and one sample was collected from the scenario area used in child's play and raking, SQ-00062.

On June 25, 2005 activity based sampling was conducted in areas of the Site that was previously sampled trace for LA (CS-09595). One soil sample was collected from the area where mowing took place, SQ-00066 and one sample was collected from the scenario area used in child's play and raking, SQ-00067.

#### **2.3.1.2 Sample Analysis**

All soil samples collected during these events were processed at CDM's close support facility in Denver in accordance with the soil preparation plan (CDM 2004d) and analyzed for LA using two techniques: polarized light microscopy (PLM) visual area estimation (VE) and the PLM gravimetric method (SRC 2003). EPA is in the process of evaluating the accuracy and replicatability of each of these methods. However, based on EPA's performance evaluation study to date, PLM-VE results are currently being used to make project removal decisions. Therefore, for the purposes of this report, only PLM-VE results are presented.

#### **2.3.1.3 Sample Results**

Of the 177 field samples collected, 6 had detectable levels of LA. Samples CS-09294, CS-09595, CS-18583, SQ-00066, and SQ-00067 had trace amounts of LA (< 0.2 percent [%]) and CS-09658 had a concentration of < 1% LA. Figure 2-4 illustrates the location of all samples collected during the sampling events described in the previous sections. Each sample with detectable levels of LA is discussed below.

- Sample CS-09294 was collected as a 5 point composite sample from 0-6" bgs in the Southwest Area in a grid just north and across the street from the fire pond. No visible vermiculite was observed in this sample.
- Sample CS-09595 was collected as a 5 point composite sample from 0-6" bgs in the Former Champion International Tree Nursery Area near the center of the subarea. No visible vermiculite was observed in this sample.
- Sample CS-18583 was collected as a 5 point composite sample from 0-1" bgs in Grid 2 of the proposed demolition derby track. No visible vermiculite was observed in this sample.
- Sample CS-09658 was collected as a 3 point composite sample from 48-60" bgs in the Former Popping Plant area in the vicinity of the railroad spur.



- Sample SQ-00066 was collected as a 19 point composite sample from 0-2" bgs in the sample collection area of CS-09595 for the lawn mowing scenario. Visible vermiculite was observed in this sample.
- Sample SQ-00067 was collected as a 5 point composite sample from 0-2" bgs in the sample collection area of CS-09595 for the raking and child's play scenarios. Visible vermiculite was observed in this sample.

Logbook notes and field sample data sheets are provided in Appendix C.

## **2.3.2 Dust Sampling**

This section discusses the field activities and sample results associated with the three investigative dust sampling events conducted at the Site:

- May 2002, dust sampling of nursery shed
- September 2002, CSS site wide dust sampling
- April 2004, PDI dust sampling to identify areas requiring interior cleaning

### **2.3.2.1 Sample Locations**

#### **2.3.2.1.1 May 2002 Sampling Event**

A total of 2 microvacuum dust samples were collected from the shed in the former nursery area on May 2, 2002. All locations were approved by EPA prior to sampling. During a supplemental site visit to locate the nursery shed in 2007, it was determined that the building has been partially demolished.

The microvacuum dust samples collected from the shed were composites taken from the concrete floor (1-06850) and the standing wood and debris removed from the walls (1-06857).

#### **2.3.2.1.2 September 2002 Sampling Event**

A total of 37 microvacuum dust samples were collected from buildings at the Site during September 2002. Stimson employees identified buildings as containing vermiculite or not containing vermiculite. One microvacuum dust sample was collected from each building not known to contain vermiculite. Up to five microvacuum dust samples were collected from each building known to contain vermiculite. All locations were approved by EPA prior to sampling. A supplemental site visit was conducted in 2007 to locate and identify the structures still remaining onsite. Details regarding buildings that are no longer present are presented below.

Buildings that contain identified vermiculite in which five microvacuum dust samples were collected were:

- Central Maintenance Building (BD-002098)
  - Machine shop
  - South end of central maintenance building

- Center of central maintenance building
  - Northern end of central maintenance building
  - Supervisor's office and break room
- Plywood Plant (BD-002099)
- Break room and office at finish end
  - Plugger area
  - Spreaders and finish end
  - Green chain
  - Dryer area

Buildings that do not contain vermiculite in which two microvacuum dust samples were collected:

- Finger joint plant (BD-002097)
- Former lunchroom (now parts storage)
  - Doorways & entrances
- Truck barn (BD-002110)
- North side
  - South end of building
- Main office (BD-002269)
- First floor
  - Second floor
- Buildings that do not contain vermiculite in which one microvacuum dust sample was collected are listed below.
- Log yard break building (BD-002100) – no longer present in 2007
  - Log yard storage building (BD-002101) – no longer present in 2007
  - Log yard oil storage shed (BD-002102) – no longer present in 2007
  - Log yard pump house (BD-002103)
  - Log yard truck scale shed (BD-002104)
  - Irrigation building (BD-002105) – no longer present in 2007
  - Diesel fire pump house (BD-002106)
  - Double wide trailer (BD-002107) – building partially demolished in 2007
  - Electric pump house (BD-002108)
  - Guard station at Libby Creek Bridge (BD-002109) – no longer present in 2007
  - Steel storage (BD-002111)
  - Fire hall (BD-002112)
  - Wagner shed (BD-002260)
  - Electric motor shed (BD-002261)
  - Astrodome (BD-002262)
  - Pipe shop (BD-002263)

- Storage & locomotive shed (BD-002264)
- Power house office (BD-002265)
- Power house (BD-002266)
- Lumber kilns (BD-002267) – no longer present in 2007
- Shed 12 (BD-002268)

Figure 2-5 illustrates the location of all buildings where dust samples have been collected. Photos of the current conditions of the buildings are provided in Appendix E.

#### **2.3.2.1.3 April 2004 Pre-Design Sampling Event**

A total of 24 microvacuum dust samples were collected from the central maintenance building on April 30, 2004. Samples were collected from the horizontal surfaces (e.g., shelving units) and high traffic areas (e.g., entryways) of each of the four main subareas of the building (i.e., former mobile shop, former engineering and warehouse (E&W) areas, former lift truck barn).

#### **2.3.2.2 Sample Collection**

All microvacuum dust samples were collected in accordance with the American Society for Testing Materials (ASTM) Standard D-5755-95, Standard Test Method for Microvacuum Sampling and Indirect Analysis Dust by Transmission Electron Microscopy for Asbestos Structure Number Concentrations. The dust samples were composite samples consisting of up to three 100 centimeters squared (cm<sup>2</sup>) subsamples per cassette. Samples were collected in each 100 cm<sup>2</sup> area for 2 minutes or until all visible dust had been removed. Sampling was performed using 0.45 micron mixed cellulose ester filters. All sampling pumps were calibrated prior to the sampling period and again at the end of the sampling period.

#### **2.3.2.3 Sample Analysis**

Dust samples were analyzed by EMSL Analytical, Inc. (EMSL) in Libby, Montana, and Westmont, New Jersey; Reservoirs Environmental Services in Denver, Colorado, and/or Hygeia in Sierra Madre, California. All samples were analyzed in accordance with the International Organization of Standards 10312, Air Quality - *Determination of Asbestos Fibers – Direct Transfer Transmission Electron Microscopy Method*, 1995 or in accordance with the ASTM Standard D-5755-95.

#### **2.3.2.4 Sample Results**

Of the 63 dust samples collected, 20 samples had detectable levels of LA below the level requiring cleaning as directed by EPA. These dust samples were collected from the central maintenance building, log yard oil shed, scale house, irrigation building, electric pump house, truck barn, steel storage, wagner shed, electric motor shed, storage and locomotive shed, and main office building.

Of the 63 dust samples collected, 4 samples had detectable levels of LA above the level requiring cleaning as directed by EPA. Each sample exceeding the removal criteria of 5,000 structures per square centimeter (S/cm<sup>2</sup>) of LA is discussed below. The analytical results for all remaining dust samples were non-detect for LA. Table 2-7 summarizes

the analytical results of each dust sample as well as identifying the sample location, subsample locations, and analysis method.

LA structures were detected in only one of the samples collected in the former nursery area shed. This sample (1-06857) was a composite of locations atop of standing wood piles in the east and west ends of the main room, along with a ground level horizontal beam on the south wall. The analytical result of this dust sample for LA was 7,024 S/cm<sup>2</sup>. This building was no longer present during the 2007 site visit.

LA structures were detected above the action level requiring cleaning as directed by EPA in only one of the 29 dust samples collected from the central maintenance building. This sample (SL-00061) was a composite of one location in each of the Cummins engine room, Cat engine room, and large jack stand in the main work area. The analytical result of this dust sample for LA was 8,823 S/cm<sup>2</sup>.

The sample (SL-00175) collected from three locations within the diesel fire pumphouse had an analytical result for LA of 8,823 S/cm<sup>2</sup>.

The sample (SL-00178) collected from the guard station at the Libby Creek bridge was also above the level requiring cleaning. The analytical result of this dust sample for LA was 44,116 S/cm<sup>2</sup>. This building was no longer present during the 2007 site visit.

LA structures were not detected on samples collected in the following buildings:

- Plywood plant (BD-002099)
- Finger joint plant (BD-002097)
- Log yard break building (BD-002100)
- Log yard storage building (BD-002101)
- Log yard pump house (BD-002103)
- Double wide trailer (BD-002107)
- Astrodome (BD-002262)
- Pipe shop (BD-002263)
- Power house office (BD-002265)
- Power house (BD-002266)
- Lumber kilns (BD-002267)
- Shed 12 (BD-002268)

Logbook notes and field sample data sheets are provided in Appendix D. Figure 2-6 illustrates the location of all soil and dust samples collected as well as their analytical results for LA.

### **2.3.3 Bulk Sampling**

#### **2.3.3.1 Sample Locations**

The roofing material on the Former Mobile Shop (a subarea of the central maintenance building; refer to Section 3 for more detailed subarea descriptions) was composed of a 4-inch layer of aerated concrete atop the tongue and groove ceiling of the building. Samples were collected from the south and east areas of this roof

because the vermiculite-containing building material (VCBM) was severely friable and degraded. Samples were also collected from the roofing material of the Former E&W Area A because it is made of the same VCBM as the Former Mobile Shop. Samples were not collected from the lower roof of the Former Mobile Shop because it is undamaged and in good condition. Samples were also not collected from the Former E&W Area B because the roof does not contain aerated concrete VCBM.

#### **2.3.3.2 Sample Collection**

Three bulk samples were collected from friable VCBM of the Former Mobile Shop in March 2004. Two additional bulk samples were collected from the Former E&W Area A roofing material in August 2004.

All bulk samples collected in 2004 were collected from the friable roofing material in accordance with Code of Federal Regulations Title 40 Part 763.86 (Asbestos Hazard Emergency Response Act Sampling Requirements) and as referenced in the PDIWP (CDM 2003).

#### **2.3.3.3 Sample Analysis**

Bulk samples were analyzed by EMSL in Libby, Montana in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 9002, Asbestos (bulk) by PLM.

#### **2.3.3.4 Sample Results**

All three field samples collected in March 2004 from the aerated concrete roof of the Former Mobile Shop had LA detected at a concentration of <1%. The two field samples collected in August 2004 from the Former E&W Area A were non-detect for LA. Table 2-8 summarizes the analytical results for each sample as well as identifying the sample type, and sample locations. Logbook notes and field sample data sheets are provided in Appendix F.

### **2.3.4 Surface Water Sampling**

Groundwater in Libby was found to be contaminated with pentachlorophenol, polycyclic aromatic hydrocarbons, and heavy metals due to historic disposal and spilling of wood treating fluids at the Former Champion International lumber and plywood mill site between 1946 and 1969. Soil within the confines of the facility was also contaminated with pentachlorophenol, polycyclic aromatic hydrocarbons, and, to a lesser extent, dioxins. The site was added to the National Priorities List in 1983. Site soils were remediated by 1988 and groundwater continues to be pumped, treated, and monitored.

In response to community concern about the possibility of contaminant loading from the Former Champion International Superfund Site into the water supply, surface water samples were collected by CDM in 2006.

As mentioned above, ecological receptors and environmental impacts will be characterized as part of OU4. Sampling data regarding Libby Creek water samples are presented in this OU5 summary report for informational purposes only.

#### **2.3.4.1 Sample Locations**

The samples were collected from a well-mixed zone near the center portion of the stream, to the extent that the creek could be safely waded. A sample was collected from an upstream location (at approximately the influent ditch to the Fire Pond), a location adjacent to the Site, and one downstream location (approximately the dike area between the settling ponds and the creek), for a total of three samples.

#### **2.3.4.2 Sample Collection**

Two surface water sampling events took place to capture both high flow and low flow runoff conditions. A total of 6 water samples were collected in downstream to upstream order, at locations downstream, midriver, and upstream of the Site.

Sampling consisted of collecting grab water samples in accordance with CDM Standard Operating Procedure 1-1, Surface Water Sampling and the SAP for Libby Creek Surface Water (CDM 2006). Sampling took place on April 18, 2006 and on September 19, 2006.

#### **2.3.4.3 Sample Analysis**

Samples were analyzed for water quality parameters, total metals, volatile organic compounds and semi-volatile organic compounds. CDM's subcontractor, Alpha Analytical, performed the analyses.

#### **2.3.4.4 Sample Results**

Table 2-9 provides the analytical data from each sampling event. In general, there were no significant contaminants of concern detected in the water samples, and no significant analytical differences between the sample upstream from the site and downstream from the site.

Logbook notes and field sample data sheets are provided in Appendix G.

#### **2.3.5 Wood Chip Pile Sampling**

In response to an inquiry from LCPA regarding the levels of LA contamination in the wood chip piles remaining at the Site, EPA has requested a sampling plan for implementation in 2007. Preliminary sampling plans prescribe a total of five 30 point samples to be collected from the 400,000 yd<sup>3</sup> of wood chip material in five stockpiles. The depth range of samples collected will vary to represent possible contamination throughout the stockpiles. These samples will be analyzed for LA by PLM using NIOSH Method 9002 at the onsite EMSL laboratory in Libby, Montana.

Once sampling has been conducted, these data will be incorporated into this summary.

### **2.4 Quality Assurance/Quality Control**

CDM has established a formal quality assurance program to ensure consistently high quality project deliverables. The field quality assurance program was designed in accordance with CDM's RAC VIII *Quality Management Plan*, Revision 1 (CDM 2002d).

For work conducted by CDM in Libby, quality assurance/quality control (QA/QC) measures include the collection of QC samples (such as soil duplicate samples and field blanks), implementation of a laboratory quality assurance program, review of project reports by a CDM-approved quality assurance staff member, and an auditing component to assess the effectiveness of the quality assurance program. The following sections describe deviations from the Stimson Lumber Company SAP (CDM 2002c), Addendum (CDM 2002b), and the implications of those deviations on project or data quality objectives.

## **2.4.1 Deviations from the Sampling and Analysis Plan**

### **2.4.1.1 Deviations During Soil Sample Collection**

All sampling was completed in accordance with the Final SAP for the RI CSS, Libby Asbestos Site, OU4, Libby, Montana (2002a) and the site specific Final SAP Addendum for the Stimson Lumber Company Area (CDM 2002b). Deviations from the SAP and SAP addendum are addressed in Sections 2.4.1.1.1 and 2.4.1.1.2.

#### **2.4.1.1.1 October 2002 Site Wide Soil Sampling Event**

All sampling procedures detailed in the SAP Addendum (CDM 2002b) were followed except the number of collected samples compared to the number of estimated samples. Table 2-2 summarizes the number of surface and subsurface samples collected versus the number estimated in the SAP Addendum (CDM 2002b). Differences in the number of samples collected versus the number of samples estimated for each subarea are explained below.

##### ***Railroad Spur***

The SAP Addendum (CDM 2002b) called for 20 surface samples to be collected along the railroad spur; 14 samples were actually collected. Composite samples were collected along the railroad spur to 900 feet north of the former popping plant location (just to the north of 5<sup>th</sup> Street). Because no vermiculite was observed in the area of the spur north of the popping plant and a distance of 900 feet had already been sampled, additional surface soil samples were not collected.

This deviation does not impact the data quality objectives (DQOs) for this event, because all samples north of the popping plant were non-detect for LA.

##### ***Southwest Area***

The SAP Addendum (CDM 2002b) called for 23 surface and four subsurface samples to be collected in the southwest subarea. Thirteen surface and two subsurface samples were actually collected during the investigation. Seven of the proposed surface soil sampling locations were located within the Champion International Corporation Superfund Site and three were located in a wooded area in the southwest portion of this subarea that was not owned by Stimson; these 10 samples were not collected due to their location on an existing Superfund site and private property that was not part of Stimson. Two of the proposed subsurface locations were also located within the Champion International Corporation Superfund Site and were not sampled.

This deviation does not impact the DQOs for this event, because all areas previously owned by Stimson Lumber were sampled.

#### ***Former Champion International Tree Nursery***

The SAP Addendum (CDM 2002b) called for 14 surface samples to be collected in the former Champion International tree nursery area; 11 samples were actually collected. Three of the proposed surface soil sampling locations were located within the Champion International Corporation Superfund Site and were not sampled.

This deviation does not impact the DQOs for this event, because all areas previously owned by Stimson Lumber were sampled.

### **2.4.1.1.2 May 2004 BMX Track Soil Sampling Event**

All sampling procedures detailed in the SAP Addendum (CDM 2002b) and the BMX sampling letter (CDM 2004b), were followed except where discussed below.

#### ***BMX Track Area and Grid Layout***

The BMX sampling letter (CDM 2004b) indicates the track measures approximately 90,000 ft<sup>2</sup>, as taken from aerial photographs of the area, and a grid system of 9 100-ft by 100-ft grids be applied to the area for sample collection.

When field personnel arrived to begin placing the sampling grids for sampling in the track area, the actual area of the track was found to cover approximately 140,000 ft<sup>2</sup>. Due to the larger size of the track area, a grid system of 16 grids was applied to the area for sample collection. Twelve of the grids measured 100-ft by 100-ft, and 4 grids were approximately 50-ft by 100-ft. Figure 2-2 illustrates the grid system used to sample the track area.

This deviation does not impact the DQOs for this event, because all areas of the proposed track location were sampled.

#### ***Number and Depth of Samples Collected***

The BMX sampling letter (CDM 2004b) proposed one 5-point composite surface (0 to 6") soil sample and one 5-point composite subsurface (12 to 24") soil sample be collected from each of nine grids during sampling. As stated above, initial measurements indicated the track area would be included within 9 100-ft by 100-ft grids and this would result in the collection of 18 samples (one surface and one subsurface sample from each of nine grids).

Due to the larger size of the track area (~50,000 ft<sup>2</sup> larger), a grid system of 16 grids was applied to the area for sample collection. The following changes to the sampling procedures were made due to the larger size of the track area:

- To minimize the number of samples collected, but still allow for adequate characterization of the area, one 5 point composite surface sample from 0-1" bgs was collected from eight of the 16 grids.



- In addition to minimizing the number of samples to be collected, the depth to which soils were disturbed during the bulldozing activities was difficult to determine, as a result one 5 point composite surface sample from 2-6" bgs was collected from eight of the 16 grids where samples from 0-1" bgs were not collected.
- Two 5 point composite subsurface samples from 6-12" bgs were collected from two grids (#3 and #6) where vermiculite was observed at this depth. Only two samples were collected from this depth in order to minimize the number of samples collected, but still allow for adequate characterization of the area and because the depth to which soils were disturbed during the bulldozing activities was difficult to determine.
- Samples were not collected from 12-24" bgs because the depth to which soils were disturbed during the bulldozing activities was difficult to determine.

This deviation does not impact the DQOs for this event, because all areas of the proposed track location were sampled.

Table 2-4 summarizes the number of samples proposed for collection in the BMX sampling letter (CDM 2004b) versus the samples collected.

#### ***Stockpile Samples***

Due to the regrading activities before sampling occurred, several piles of soil removed were located in the track area. One 5 point composite surface sample from 2-6" below the surface of each stockpile was collected from three randomly selected stockpiles.

This deviation does not impact the DQOs for this event, because all areas of the proposed track location were sampled.

### **2.4.1.2 Deviations During Dust Sample Collection**

All sampling was completed in accordance with the *Property Specific SAP, Air and Dust Sampling for Stimson Lumber Company, Libby Asbestos Project, Libby, Montana* (CDM 2002c).

The Stimson Lumber Company SAP (CDM 2002c) stated that one dust sample was to be collected in buildings that do not contain identified vermiculite. In three such buildings, two dust samples were collected. Due to the large size of these buildings, two samples better characterized the interior of the building space.

### **2.4.2 Corrective Actions**

Since none of the deviations during any soil or dust sampling events at Stimson Lumber impacted the DQOs, there were no corrective actions required.

### **2.4.3 Achievement of Data Quality Objectives**

The data quality objectives of all soil, dust, and bulk sampling investigations were met.

#### **2.4.4 Discussion of Quality Control Results**

Laboratory analysis of the lot blanks indicated asbestos fiber counts were below the detection limit of the analytical method. Laboratory analysis of the field blanks indicated asbestos fiber counts were below the detection limit of the analytical method. The QC results indicate that the sampling cassettes were not contaminated with asbestos when received from the supplier and that cassettes were not contaminated when they were handled in the field.

#### **2.4.5 Data Validation and Reporting**

None of the analytical data contained in this report was further validated beyond that performed by the laboratory as part of their QA/QC program. Therefore, it is assumed that the raw data are useable for their intended purpose, which is to determine the extent of LA contamination at the Site.

## Section 3

# Removal Activities

Between May 5, 2005 and July 21, 2005, removal and restoration activities took place at the central maintenance building that included removal of vermiculite insulation, contaminated dust, contaminated soil, and vermiculite-containing building materials. The central maintenance building was separated into four areas for identification purposes relevant to the Addendum to the Removal Action Work Plan (CDM 2004a) which are described below and illustrated in Figure 3-1:

- Former Mobile Shop - a 45 foot tall structure, approximately 260 feet long and 54 feet wide, located on the north side of the building.
- Former E&W Areas A and B - Two 15-foot tall structures, consisting of multiple spaces. A midline wall divides the two areas along the east-west axis.
  - Area A refers to the space north of the midline wall.
  - Area B refers to the space south of the midline wall.
- Former Lift Truck Barn Area - the western portion of the building, separated from the other two areas by walls.

Additional details regarding the removal action performed at the central maintenance building are presented on the Property Closeout Checklist (Appendix H).

### 3.1 Vermiculite Insulation Removal

Vermiculite insulation and wall coverings were removed from all accessible walls as prescribed in the Addendum to the Response Action Work Plan (CDM 2004a). Six-inch diameter holes were drilled into the tongue and groove boards in between each framing cavity of the Former Mobile Shop and Former E&W Areas to access the vermiculite. Approximately 408 yd<sup>3</sup> of vermiculite insulation was removed from the walls of the building, and 10 yd<sup>3</sup> of fiberglass insulation. All insulation removed from the building was replaced with fiberglass insulation.

Vermiculite insulation was removed to the extent practical; however at this time, remnants of vermiculite insulation are believed to be present within the wall cavities. A clear encapsulant was applied to all wall cavities that contained vermiculite insulation and exterior surfaces of the walls to seal any remaining LA fibers in place.

### 3.2 Contaminated Dust (Interior Cleaning) Removal

A full interior cleaning was performed in the Former Mobile Shop. Spot cleanings were performed throughout the building to remove vermiculite insulation observed from the horizontal and high traffic areas. All interior vaults and pits were opened and inspected for vermiculite insulation. Those floor pits that contained vermiculite insulation were cleaned and included in the removal confirmation samples collected

for the building. Confirmation air samples were collected at the completing of the vermiculite insulation removal and interior cleanings to ensure that cleanup standards were achieved.

### **3.3 Contaminated Soil Removal**

Surface soil removal was completed along the west side of the building where vermiculite insulation was observed. The soils within the southeast vault were also vacuumed to remove surficial vermiculite insulation. Approximately 10 yd<sup>3</sup> of contaminated soil were removed from the Site and properly disposed. Removal confirmation samples were not collected at the request of the EPA On-Scene Coordinator, and therefore contaminated soil may remain at depth. The excavated areas were not restored to their original grade with backfill materials.

### **3.4 Vermiculite-Containing Building Materials Removal**

The entire Former Mobile Shop roof, including the aerated VCBM concrete and tar paper, was removed (approximately 50 yd<sup>3</sup> of aerated concrete roofing material) and replaced with a rubber-rolled roofing material. The corrugated metal sheeting covering the eastern quarter to the Former Mobile Shop was removed, washed and disposed of as construction debris. Any tar paper underneath the corrugated metal was removed and disposed of as asbestos containing materials. All remaining roof areas covered in friable concrete debris were surface vacuumed.

The small shed on the east end of the north side of the Former Mobile Shop was dismantled and disposed of as an asbestos containing material. The shed was not replaced.

# Section 4

## References

ASTM. 1995. Standard D-5755-95, Standard Test Method for Microvacuum Sampling and Indirect Analysis of Dust by Transmission Electron Microscopy for Asbestos Structure Number Concentrations.

CDM 2002a. Final Sampling and Analysis Plan for the Remedial Investigation Contaminant Screening Study, Libby Asbestos Site, OU4. Libby, Montana. April.

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